

to the right of the center. The head is then indexed f revolution to mill the side of the first tooth, and then J revolution for taking each of the three remaining cuts. The clutch teeth are cut a little off center in order to give the clutches the required amount of clearance.

The ideas embodied in the design of this special fixture may suggest other uses for a tool of this kind where it is required to perform milling, drilling, and other operations on work for which the regular milling machine dividing-head is not suitable.

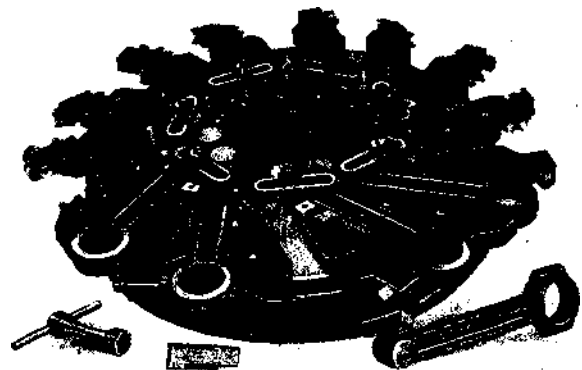


Fig. 15. Continuous
Milling
Fixture
for
Liberty
Motor
Connecting-
rods

Continuous Milling Fixture. — Fig. 15 shows a continuous milling fixture which is employed for the milling of connecting-rods on a double-spindle vertical milling machine. Four surfaces on the rods are milled at once, the top and bottom surfaces at each end being milled simultaneously. The main spindle, which is provided with

two cutters, one for the upper and one for the lower surface, mills the outer end of the rod, while the auxiliary spindle with cutters mounted in a similar manner mills the inside end of the rods. Fourteen connecting-rods are mounted in the fixture at a time, and as the fixture rotates on the table, the finished rods are taken out and new rods are inserted by the operator while the work progresses. Every other jaw for holding the connecting-rods is fixed, while every alternate jaw is pivoted at one end. By clamping against one